SB761
U7I54
1980

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

FOREST INSECT AND DISEASE CONDITIONS INTERMOUNTAIN REGION 1980

COVER STORY

Cessna T-337 used during annual sketchmap surveys for aerial detection of insect and disease infestations. Picture shows lodgepole pine mortality on the Targhee National Forest caused by the mountain pine beetle.

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FOREST INSECT AND DISEASE CONDITIONS

Intermountain Region

1980

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RESUMÉ OF CONDITIONS

Bark beetles continued to be the single-most damaging pest in the coniferous forests of the Intermountain Region. In 1980, the mountain pine beetle killed 4.4 million lodgepole and ponderosa pine. Although the majority of the mortality occurred in southern Idaho and western Wyoming in lodgepole pine, recent epidemics in Utah on State and private lands, and on the Fishlake and Dixie National Forests have resulted in significant losses in ponderosa pine stands.

Douglas-fir beetle-caused mortality remained static throughout the Region except for some localized areas on the Boise National Forest, Idaho, and some fairly high levels of activity in Grand Teton National Park, Wyoming. Pine engraver beetles caused increased ponderosa pine mortality on the Dixie National Forest, Utah, and Payette National Forest, Idaho.

Western spruce budworm defoliation increased overall to 1.5 million acres in 1980. Increases were observed on State and private lands in southern Idaho and on the Bridger-Teton, Caribou, Salmon, and Targhee National Forests; decreases occurred on the Boise and Payette National Forests. For the first time in three decades, budworm defoliation was observed on the Dixie National Forest in southern Utah.

Larch casebearer defoliation was detected in several new areas on the Boise and Payette National Forests. Ponderosa pine needle miner activity was observed in stands on the Boise, Payette, and Salmon National Forests in Idaho. Pheromone trapping of adult male tussock moths showed heavy increases in Owyhee County, Idaho; however, no visible defoliation was recorded in 1980.

The incidence of foliar diseases in the Region was very high in 1980 compared to previous years, probably due to a cool, moist

spring. *Atropellis* canker, previously unreported in the Region, was found on the Payette National Forest. Extensive areas of true fir mortality were observed in Utah. The exact cause of this mortality is unknown; however, both bark beetles and one or more root diseases are suspected.

ENTOMOLOGY

Bark Beetles

Mountain pine beetle, *Dendroctonus ponderosae* **Hopkins**

Mountain pine beetle activity persisted at high levels on the Targhee National Forest where 4.1 million trees were killed in 1980. Old infestation areas on the Island Park and Ashton Ranger Districts showed some decline; however, continuing buildups were observed on the west slopes of the Teton Range and the Hole Mountains west of Driggs, Idaho. Upward trends in beetle activity were evident on the Dubois Ranger District along the south slopes of the Centennial Mountains northeast of Dubois, Idaho.

On the Boise National Forest, beetle populations stabilized north and east of Deadwood Reservoir and along the upper reaches of the Deadwood River.

Persistent infestations occurred on the Payette National Forest in the vicinity of Hornet Creek Reservoir and Johnson Creek where an estimated 6,000 trees were killed. Widespread mortality occurred on Federal, State, and private lands from McCall, Idaho, southward along the North Fork of the Payette River through Long and Round Valleys to Smiths Ferry, Idaho. These infestations have persisted since 1962 at epidemic levels.

In south central Idaho, outbreaks of mountain pine beetle on the Sawtooth National Forest and adjacent private lands decreased in the Warm Springs drainage west of Ketchum, Idaho, and north along the Wood River to Galena Summit. The epidemic in the upper reaches of the South Fork of the Boise River declined and populations on the Twin Falls Ranger District have remained at a low level since 1978.

On the Caribou National Forest, Idaho, mountain pine beetle infestations continued at moderately high levels in the vicinity of Rasmussen Ridge, south of Upper Valley, near Freeman Pass and west of Green Basin.

Mountain pine beetle activity on the Ashley National Forest in Utah continued to intensify on the north and south slopes of the Uinta Mountains from Hoop Lake to Flaming Gorge and from Charlies Park to the Gorge. On the Wasatch-Cache National Forest, also in Utah, the heaviest concentration of lodgepole pine mortality occurred in the Bear River drainage in the vicinity of Christmas Meadows. Significant mortality also occurred in a 2,000-acre area west of Randolph, Utah, near Bug Lake.

In southern Utah outbreaks occurred on Federal, State, and private lands adjacent to Beaver and Escalante. Significant tree losses occurred east of Beaver, Utah, in the North Fork of North Creek and in the summer homesites surrounding Little Reservoir. On the Escalante Ranger District, Dixie National Forest, mountain pine beetle activity increased in virgin stands of ponderosa pine along the rim of the Aquarius Plateau. Extensive mortality occurred in the Cowpuncher and Grimes Creek areas where 20,000 trees were killed in a 10,000-acre area of the infestation.

Douglas-fir beetle, *Dendroctonus pseudotsugae* **Hopkins**

Throughout the Intermountain Region Douglas-fir mortality caused by the Douglas-fir beetle continued to decline. Large infestations that were prevalent on the Boise, Payette, and Salmon National Forests for several years decreased dramatically in 1980. Since 1978, large groups of Douglas-fir mortality have been mapped in Grand Teton National Park on the east-facing slopes of the Teton Range. These infestations continued in 1980; however, group sizes appeared to be smaller.

Pine engraver beetle, *Ips pini* **(Say)**

On the Boise National Forest, the number of pine engraver beetle mortality centers remained static with an estimated 5,000 trees killed. The heaviest mortality occurred in the Fall Creek drainage north of Anderson Ranch Reservoir, and in several areas west and north of Idaho City. Chronic scattered group killing continued in Clear Creek near New Centerville, Idaho, in State and private lands.

On the Payette National Forest, *Ips* infestations increased in ponderosa pine on the Council and New Meadows Ranger Districts. Increases in activity were also observed on the Dixie National Forest, Utah, and Toiyabe National Forest, Nevada.

Western Pine Beetle, *Dendroctonus brevicomis* **LeConte**

Western pine beetle activity throughout the Intermountain Region, with one exception, was at a relatively low level in 1980. This beetle, in conjunction with mountain pine beetle, roundheaded pine beetle, and pine engraver beetle, caused extensive tree killing in virgin stands of ponderosa pine on the Escalante Ranger District, Dixie National Forest, and on private land adjacent to Bryce Canyon. This infestation is expected to continue at its present level or accelerate during 1981.

Western balsam bark beetle, *Dryocoetes confusus* **Swaine**

Chronic mortality of subalpine fir continued to increased throughout the subalpine fir habitat type in the Intermountain Region. The western balsam bark beetle is one of several agents causing the extensive fir mortality on Federal, State, and private lands. Other agents associated with the bark beetle are root rots and a blue stain fungus.

Defoliators

Western spruce budworm *Choristoneura occidentalis* **Freeman**

Defoliation by the western spruce budworm in the Intermountain Region has ranged from a high of over 2 million acres in 1964 to a low of approximately 200,000 acres in 1967 (Figure 1). Aerial sketch-map surveys in 1980 identified 1.5 million acres of defoliation (Table 1). The survey did not include defoliated acreage in the River of No Return and the Sawtooth Wilderness Areas.

The Targhee National Forest and surrounding private land showed the greatest increase in budworm activity from 1979 with an additional 198,700 acres defoliated in 1980. Expansion of defoliated areas was recorded along the south-facing slopes of the Centennial Mountains. New infestations on the Boise National Forest were found in the Deadwood Reservoir area and several drainages east of Lowman, Idaho. The Caribou National Forest has 61,700 acres of defoliation adjacent to the infestation on the Targhee National Forest. Increasing defoliation was observed on the Salmon National Forest where approximately 18,000 acres of new damage were recorded. Heavy defoliation continued on the North Fork Ranger District and along the west-facing slopes of the Beaverhead Mountains. New areas of infestation extended north and south of Salmon, Idaho, primarily in areas where populations collapsed in 1965. Budworm acreages on the Bridger-Teton National Forest, Wyoming, increased from 147,000 acres in 1979 to 263,900 acres in 1980. Expansions occurred along the Greys River, Willow Creek, and the Hoback River drainages south and east of Jackson, Wyoming.

Approximately 6,000 acres of new defoliation were detected on the Dixie National Forest. The infestation is located in the Red

Figure 1. Visible defoliation by western spruce budworm in the Intermountain Region during the past 17 years as determined by aerial surveys.

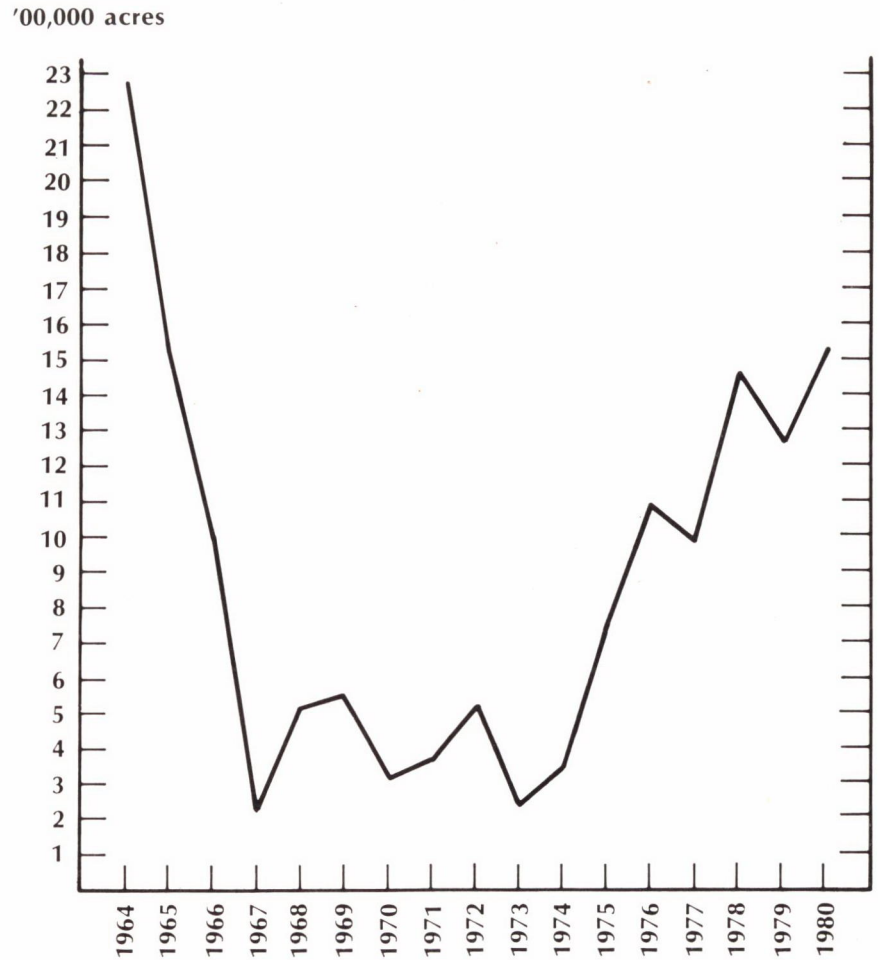

Table 1. **Acres of defoliation by western spruce budworm in the Intermountain Region during 1980.**

National Forest, Park, and Intermingled State and Private Lands	DEFOLIATION INTENSITY (ACRES) Light	Moderate	Heavy	Total
Boise N.F.	110,900	34,300	59,000	204,200
Caribou N.F.	32,000	29,700	–	61,700
Dixie N.F.	4,000	2,000	–	6,000
Payette N.F.	9,400	108,800	89,400	207,600
Targhee N.F.	195,500	177,600	32,300	405,400
Salmon N.F.	151,900	178,000	33,600	363,500
Bridger-Teton N.F.	85,800	147,400	30,700	263,900
Grand Teton N.P.	7,200	–	2,500	9,700
TOTALS	**596,700**	**677,800**	**274,500**	**1,522,000**

Creek, Little Creek, and Caddy Creek drainages east of Paragonah, Utah. Primary species affected are Douglas-fir and white fir with some damage occurring in Engelmann spruce and subalpine fir.

Budworm infestations in Grand Teton National Park decreased by 2,800 acres. However, heavy defoliation is still evident on

Blacktail Butte. Defoliation intensities in other areas of the Park appeared to be decreasing.

In southern Idaho, the main infestation on State and private lands lies to the south and east of Idaho Falls in the Blackfoot Mountains, Sheep Mountain, and Brockman areas. Aerial survey of the Blackfoot Mountains area showed increased defoliation of 5,830 additional acres in 1980. Top kill of subalpine fir was also seen for the first time. A total of 68,000 acres of State and private land was defoliated in 1980. Egg populations were surveyed and moderate to heavy defoliation with subsequent increased growth loss and top kill are anticipated for 1981.

Ponderosa pine needle miner, *Coleotechnites* **sp.**

Ponderosa pine needle miner activity was observed in the Lick Creek and Powder Gulch drainages on the North Fork Ranger District, Salmon National Forest (Figure 2). Some relatively small infested areas were observed in Dry Beaver Creek on the Payette National Forest. On the Emmett Ranger District, Boise National Forest, ponderosa pine needle miner was aerially sketch-mapped in the Second Fork, Fir Gulch, and Pine Creek drainages.

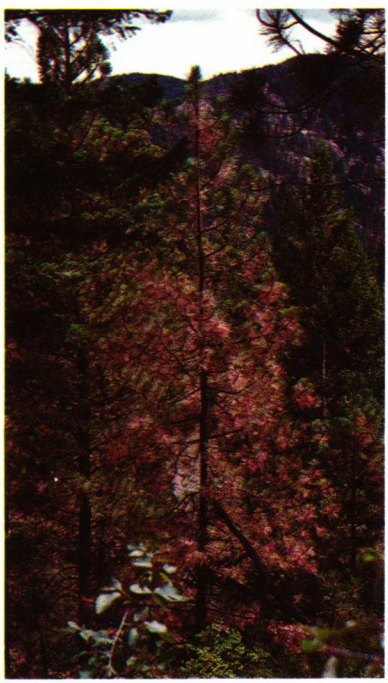

Figure 2. Needle miner, *Coleotechnites* sp., in ponderosa pine, North Fork Ranger District, Salmon National Forest, Idaho.

Larch casebearer, *Coleophora laricella* **Hübner**

Discoloration of western larch was observed on approximately 7,000 acres on the Boise and Payette National Forests in 1980. Ground checks on the west side of Cascade Reservoir revealed larch casebearer and a needle pathogen, *Meria laricis.*

A parasite, *Chrysocharis laricinella,* of the larch casebearer was collected from the Colville National Forest in Region 6 and released at five sites on the Boise and Payette National Forests in early spring.

Douglas-fir tussock moth *Orgyia pseudotsugata* **McDunnough**

Pheromone traps were used to monitor population levels of Douglas-fir tussock moth on Bureau of Land Management and State lands in the Owyhee Mountains on Dewey Peak and in Mill Creek. Catches of adult male moths indicate a significant population expansion in the Dewey Peak area. Moths or caterpillars were found in two residential areas near Hailey, Idaho.

Wood Borers

Poplar butt borer, *Xylotrechus obliteratus* **LeConte**
Poplar borer, *Saperda colcarata* **Say**

An outbreak of these two borers occurred on 7,000 acres of private land south of Park City, Utah, where 70 percent of the aspen trees were attacked. No significant mortality has occurred to date.

PATHOLOGY

Atropellis Canker, *Atropellis piniphila* (Weir) Lohman & Cash

A pathogen previously unknown in southern Idaho is *Atropellis piniphila*. This disease causes cankers on main stems of predominantly lodgepole pine. Its occurrence was confirmed in a 60-year old lodgepole pine stand in the Yellow Jacket area, Payette National Forest (Figure 3). Seventy-five to eighty percent of the lodgepole pine were infected with from one to six cankers.

Figure 3. *Atropellis piniphila* cankers on lodgepole pine, Payette National Forest, Idaho.

Annosus root and butt rot, *Fomes annosus* (Fr.) Cke.

Fomes annosus caused root decay in Douglas-fir on the Salmon National Forest, mortality of Douglas-fir and ponderosa pine on the Payette National Forest, and white fir and subalpine fir mortality on the Wasatch National Forest (Figure 4).

Rhabdocline needle cast, *Rhabdocline* spp.

Rhabdocline pseudotsugae was occasionally observed defoliating Douglas-fir throughout southern Idaho during the spring. By fall moderate levels of spotting occurred on the current year's foliage in the same areas. Fruiting bodies associated with the needle spots were unlike those described for *R. pseudotsugae*. The fall pattern of sporulation plus the type of fruiting bodies suggest the pathogen, *R. weirii* Parker & Reid, a closely related organism.

Figure 4. Ponderosa pine mortality caused by *Fomes annosus*, Payette National Forest, Idaho.

Elytroderma needle cast, *Elytroderma deformans* (Weir) Darker

Elytroderma needle cast of ponderosa and occasionally lodgepole pine was extremely heavy on the Boise and Payette

National Forests. Many sapling and pole-size ponderosa pine had a large percentage of previous year's needles discolored to a vivid orange-red from early spring through early summer.

Meria needle disease, *Meria laricis* **Vuill.**

Western larch on approximately 7,000 acres in central Idaho was discolored a bright red-orange throughout the year (Figure 5). Early spring damage was thought to result from a late spring frost, larch casebearer defoliation, or severe infection by the needle pathogen, *Meria laricis*. Discoloration of a mid-season flush of needles was caused predominantly by *M. laricis,* as determined by cultural and microscopic examination.

Figure 5. Discoloration of western larch by the needle fungus, *Meria laricis,* in central Idaho.

Miscellaneous needle diseases of conifers

Infrequent infections of needle rust, *Coleosporium asterum* (Diet.) Syd., and needle cast, *Lophodermella concolor* (Dearn.) Darker, were noted on lodgepole pine in southwestern Idaho.

Aspen leaf diseases

At least three different pathogens were involved with the leaf spotting and premature yellowing of aspen foliage throughout the Region. These were leaf spot, *Marssonina* sp., ink spot, *Ciborina* sp., and leaf rust, *Melampsora* sp.

DISTRIBUTION OF MAJOR FOREST INSECT INFESTATIONS IN REGION 4*

1980

LEGEND

- *Mountain Pine Beetle*
- *Douglas-fir Beetle*
- *Western Spruce Budworm*
- *True Fir Mortality*

Based on aerial and ground surveys

STATE AND PRIVATE FORESTRY
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

SCALE

miles

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* Recent reorganization has resulted in numerous boundary changes which are not shown on this map. In addition, portions of several National Forests were not flown.

RELIEF MAP
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